Green Preservation: Think Outside The Box

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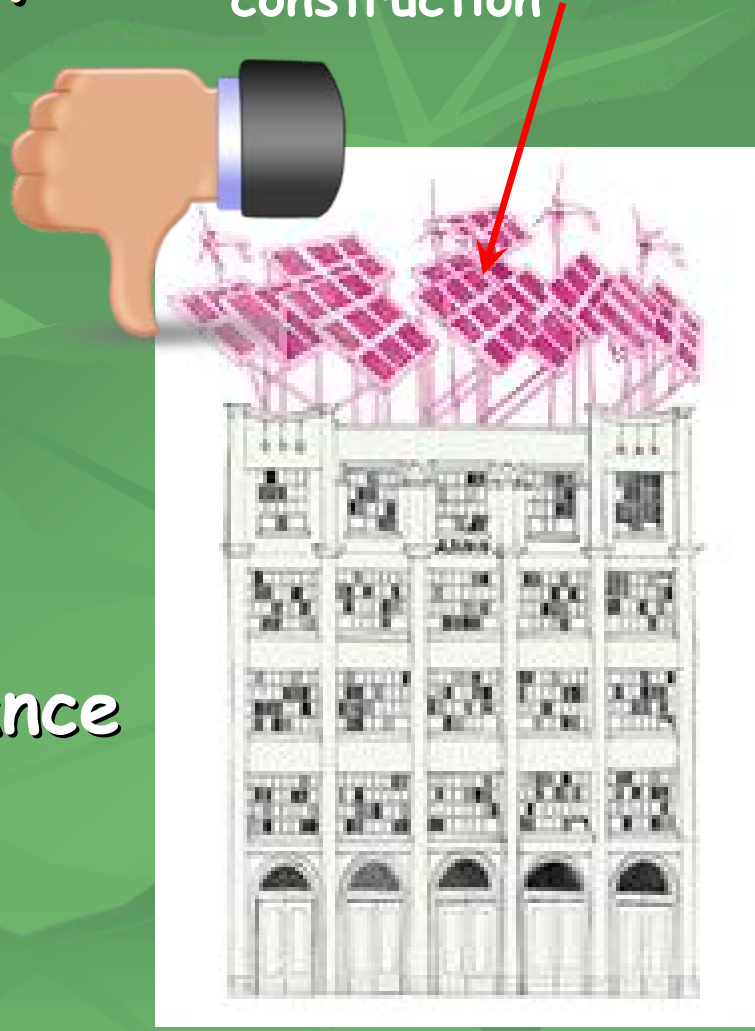
Green Preservation: Think Outside The Box

- What is Green?
- Planning Your Project
- Reduce Infiltration
- Improve Thermal Performance
- Other Considerations



What is Green?

LEED

- Sustainable development is "green."
- Programs rate materials, techniques, and practices.
  - LEED, LEED for Homes, EnergyStar, etc.
- Preservation is inherently green
  - Most rating systems are developed for new construction.

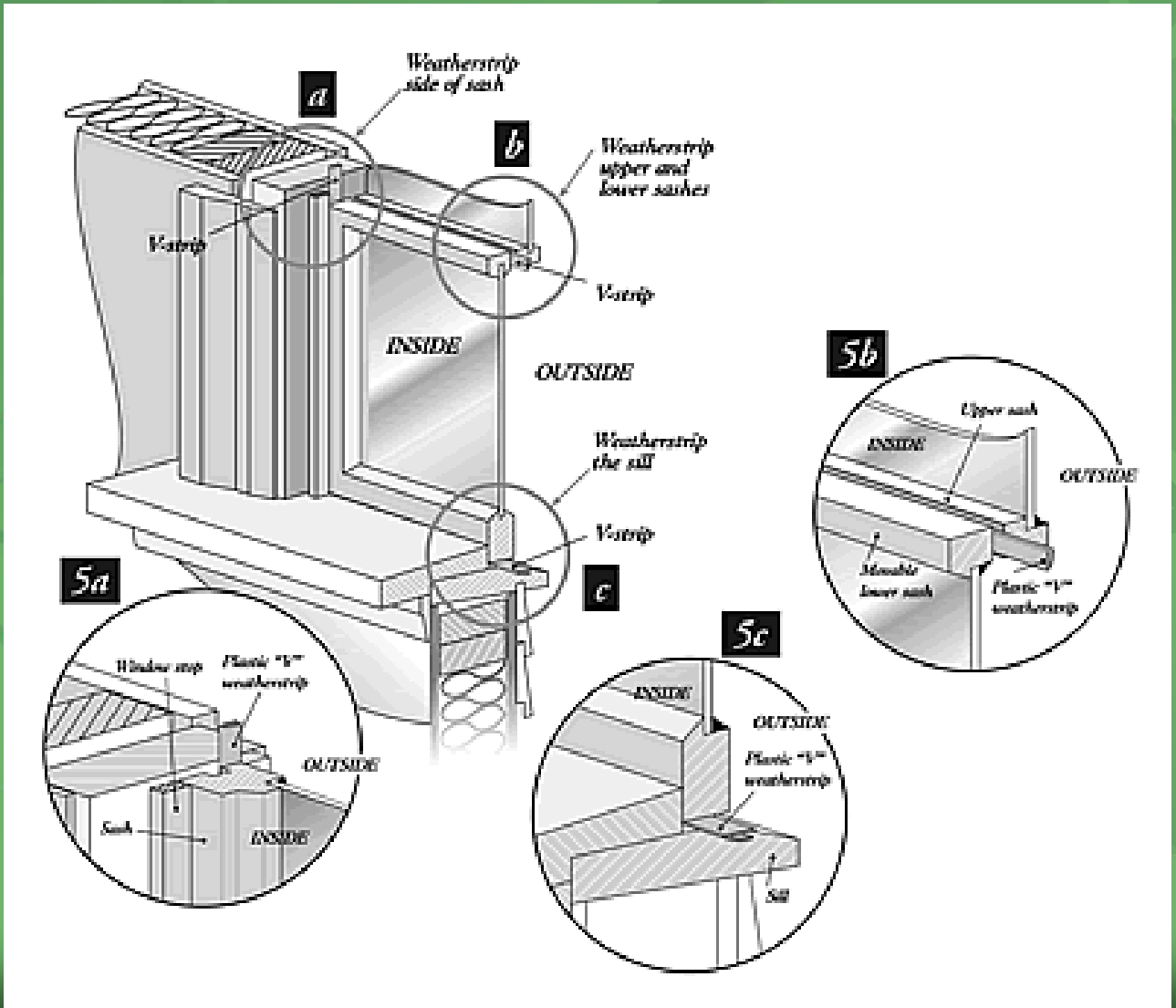
Planning Your Project

- Energy efficiency is project specific
  - Energy Technical Assistance Program
    - Action Plan / Energy Audit
  - Contact: Catherine Vanden Houten
    State Energy Office, 803-737-9852
- Rehabilitation work on a historic building may be subject to review
  - Tax credits, Contact SHPO
  - Local Design Review, Contact local board staff
- State owned or leased buildings must meet specific energy and preservation standards

Reduce Infiltration

- Keep outside air from coming into the building to save energy
  - Add weatherstripping
  - Caulk gaps around doors and windows
  - Maintain neutral pressure or create slight positive pressure (carefully seal all supply ductwork)
  - Caulk sills behind baseboards
  - Insert gaskets at electrical outlets on exterior walls

Reduce Infiltration Weatherstripping



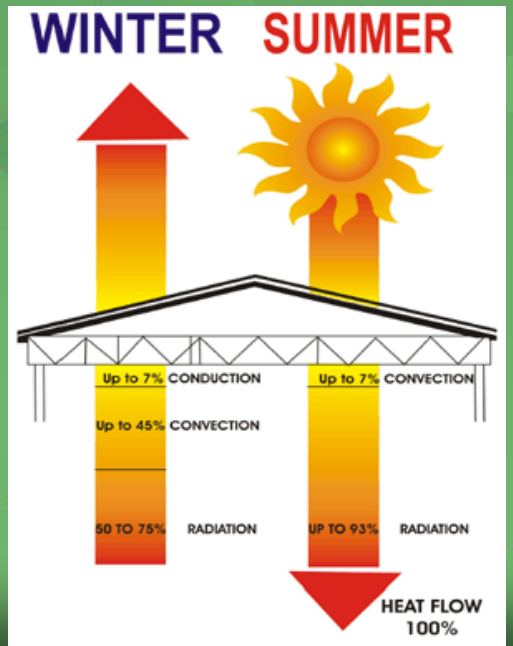
Reduce Infiltration
Caulking

Improve Thermal Performance

- Attic Insulation
- Walls & Windows
- Crawlspace (under floor) Insulation

Improve Thermal Performance
Attic Insulation / Radiant Barrier

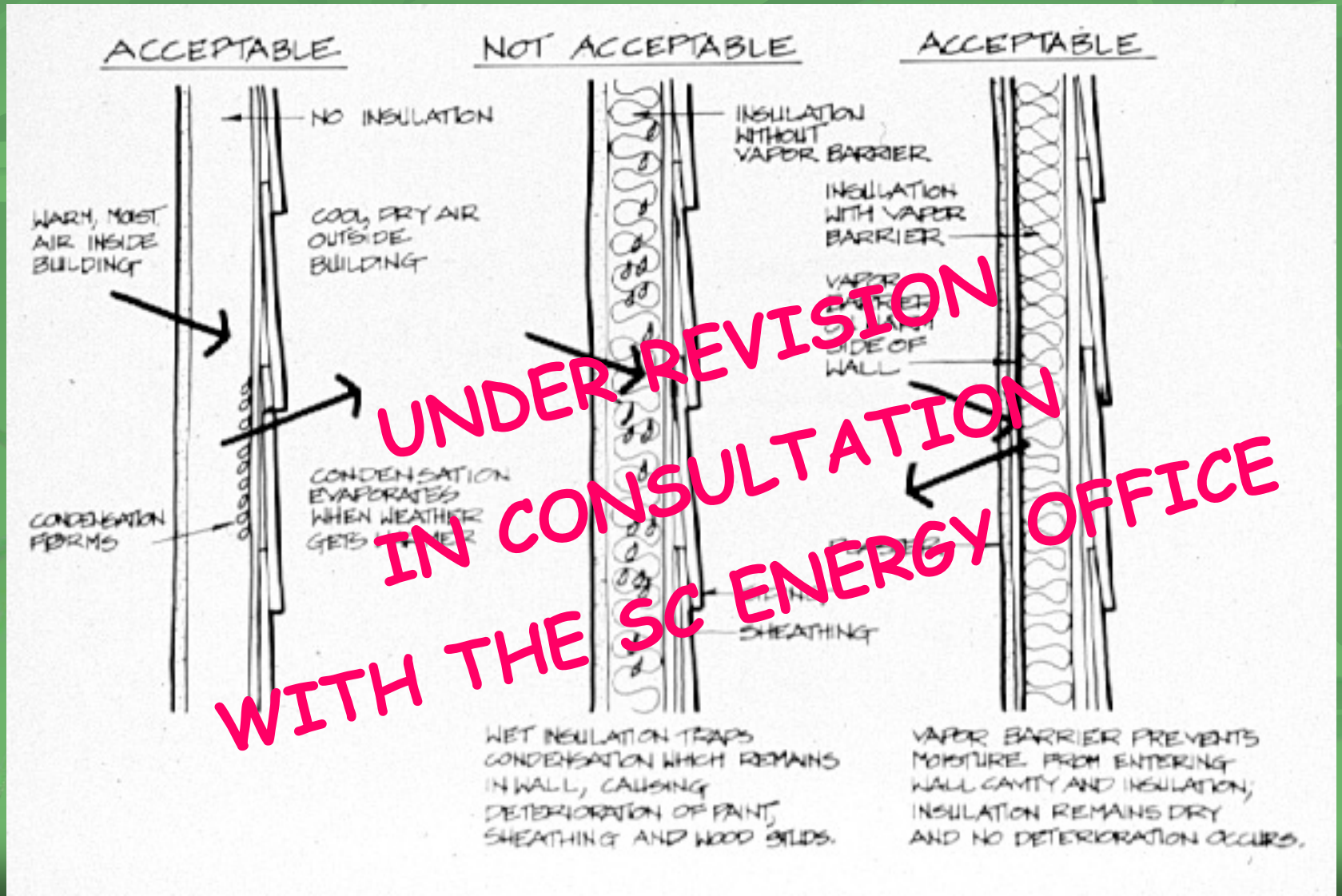
- Attic insulation is the most important.
- Consider adding a radiant barrier.
- Provides a quick payback (energy saved vs. cost)



Improve Thermal Performance
Walls & Windows

- Insulating walls has potential to trap moisture, base your treatment on analysis by building science professional
  - Certified Energy Manager, "CEM"
  - Home Energy Rating System, "HERS"
- Retain historic windows and add a storm window

Improve Thermal Performance Insulating Walls – Strong Warning



Improve Thermal Performance Window to Wall Area

- Have realistic expectations about energy performance of the overall wall system.
- Btu/hr. = Area (sq.ft.) x U x (To – Ti)

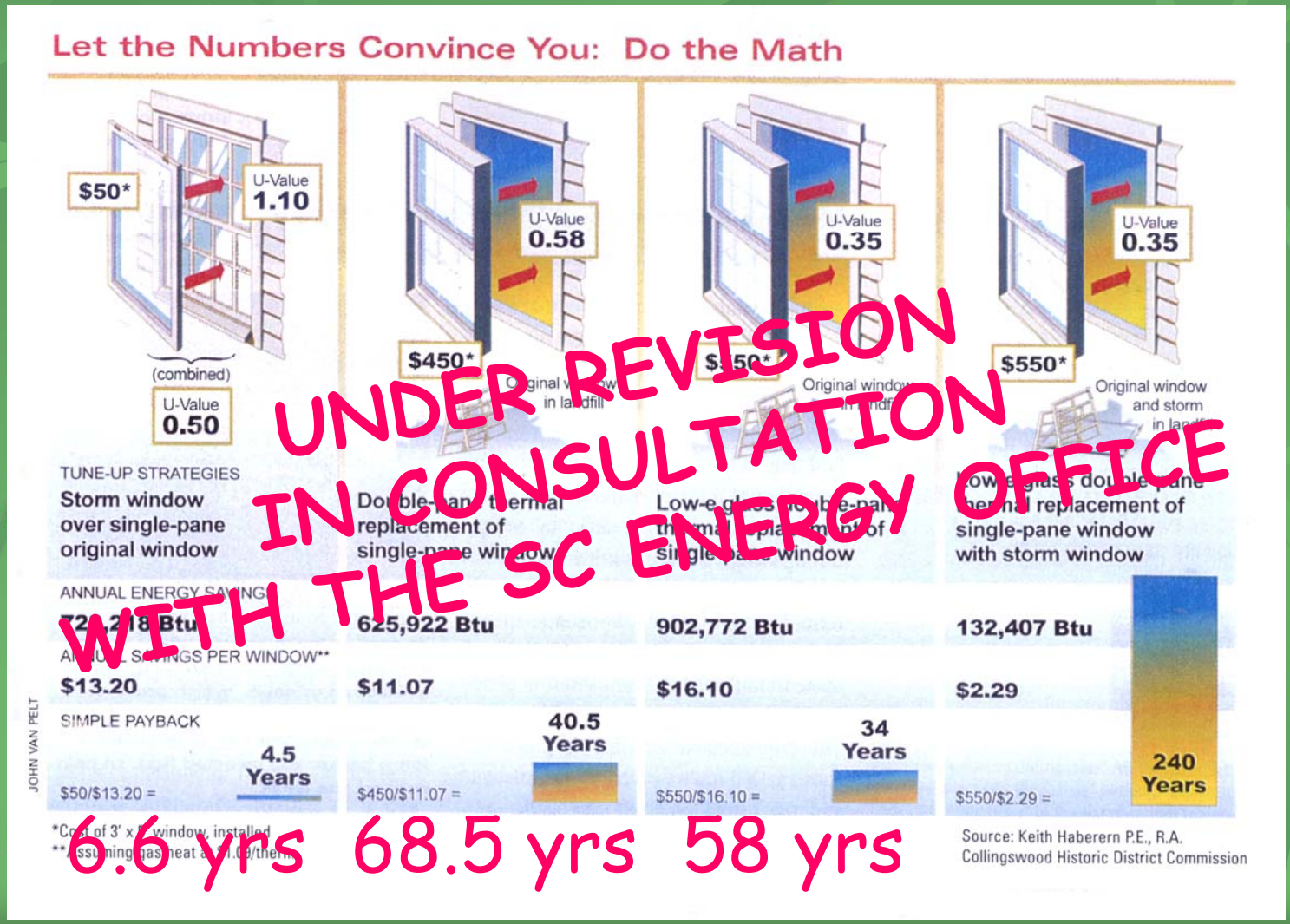
Improve Thermal Performance Retain Historic Windows

- Historic wood windows in sound condition can be repaired and retained
- Old-growth wood is much denser than new-growth wood.
- Retaining historic windows retains historic character.

Improve Thermal Performance Storm Windows

- Storm windows add another panel of glass and an air space to historic windows to improve performance
- Quick payback (energy saved vs. cost)
- Reduces outside noise
- Several types available
  - Interior or exterior
  - Frames and glazing options

Improve Thermal Performance
Storm Window Payback



UNDER REVISION
IN CONSULTATION
WITH THE SC ENERGY OFFICE

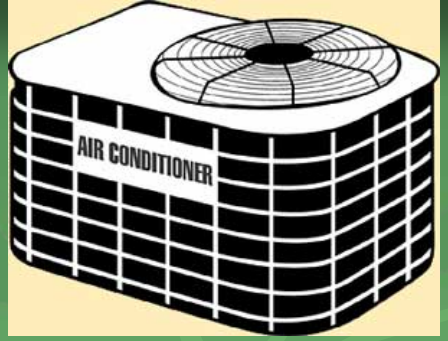
6.6 yrs 68.5 yrs 58 yrs

Improve Thermal Performance Reduces Outside Noise

Improve Thermal Performance
Storm Window Types

- Interior/Exterior
- Frames:
  - Wood, Aluminum, Vinyl, etc.
- Glazing:
  - Glass, Plexiglas, etc.
- Attachment:
  - Magnetic, Spring-loaded, Velcro, etc.

Other Considerations HVAC



- Heating, Ventilating, and Air Conditioning (HVAC) Systems
  - Newer systems are more energy efficient
  - If in use most hours of the day, replace units over 15 years old.
  - Install a programmable thermostat
  - Replace filters regularly
  - Seal ductwork

Other Considerations Lighting

- Lighting
  - Replacing incandescent bulbs with compact fluorescent bulbs can save over 50% of energy used for lighting
  - Consider motion-activated light switches

Other Considerations Thoughtful Use

- Look at the way we use the building
  - Turn off lights when not in use
  - Set thermostat to suit the season (warmer in summer, cooler in winter)
  - Heat/cool rooms we are using
  - Lower hot water heater temperature
  - Install and use thermal drapes
  - Wash clothes with cold water, line dry
  - Keep refrigerator closed, coils clean
  - Others?

Summary

- Plan your project for your unique building
  - Ask for assistance – energy & preservation
- Reduce infiltration to save energy
- Improve thermal performance
  - Attic Insulation
  - Retain historic windows, add storms
- Replace old HVAC units, replace lights
- Thoughtful use

What Questions Do You Have?

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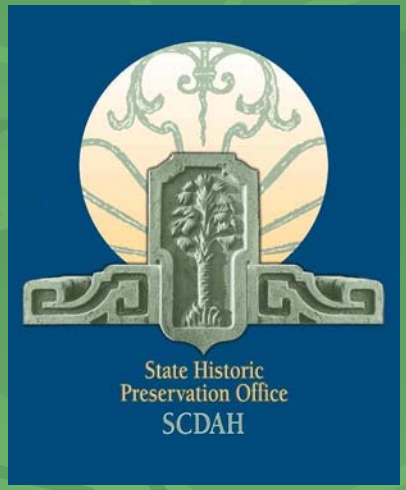

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